USDA Forest Service May 14, 2014
Grand Mesa, Uncompahgre, and Gunnison National Forests

Spruce Beetle and Sudden Aspen Decline Management Response

Basic Science and Analysis Assumptions: *Forest Vegetation and Silvicluture*

Guiding Issues and Goals

Issue: Forest vegetation has been affected by 2 causal agents, spruce beetle and sudden aspen decline. Current forest vegetation conditions for spruce show excessive mortality. Aspen is in various stages of decline and mortality.

Goals:

- Focus on public health and safety
- Re-establish forests damaged by bark beetles
- Prevent or mitigate future bark beetle outbreaks
- Focus aspen treatments to effectively provide for more diversity of age classes across the landscape
- Mitigate the effects of sudden aspen decline using the best available science to apply what is understood to be the best silviculture prescriptions
- Maximize economic value

Overarching Assumptions

- Beetle Epidemic is catastrophic, so silviculture methods include some resiliency treatments but mostly salvage logging in stands with excessive mortality
- Uneven-aged management in live stands with patch cuts or single tree selection
- Work in an adaptive implementation and management paradigm. Learn by doing, apply what is learned to change as necessary
- Most spruce-fir stands in the project area are dominated by mature and over-mature trees
- Increasing species mix, decreasing tree size/age and decreasing stand density are indirect control tactics
- The scale of the current beetle epidemic is larger than any event seen in Colorado since European settlement (DeRose and Long 2012)
- Climate change, mainly changes in effective moisture influence beetle outbreaks and SAD (Worrall 2010)
- Beetle outbreak locations are random (but anticipated) and locations of future infestations are not entirely predictable.

Methods – Analysis Approach

- Define 'opportunity areas' for treatment
- May use analysis of tree size and stand density to determine where beetle risk is higher and where treatments may be prioritized in the opportunity areas
- Use past timber sale data to estimate timber volumes
- Currently estimating 15-20 CCF/acre in salvage

Expected Outcomes /Results

In areas where management is undertaken, silviculture prescriptions would seek to maintain forest cover. If mortality levels in spruce dominated stands are high, salvage logging would remove dead / dying trees so that a new forest can be natural regenerated or planted (if necessary). In other spruce dominated stands, group selection and/or matrix thinning would occur, where authorized under the Southern Rockies Lynx Amendment EIS. Aspen stands would be prescriptively treated to retain aspen on the landscape.